AMENDMENTS TO THE SPECIFICATION

Please amend the present title as follows:

~~TIRE ACTING FORCE MEASURING METHOD, AND TIRE ACTING FORCE MEASURING DEVICE~~ METHOD FOR MEASURING FORCES ACTED UPON TIRE AND APPARATUS FOR MEASURING FORCES ACTED UPON TIRE

Page 8, after BRIEF DESCRIPTION OF THE DRAWINGS, please amend the following two paragraphs:

FIG. 1 is a front view of a tire showing a point on a tread portion and [[an]] a direction of this point.

FIG. 2 is a graph showing a relation between peripheral component and radial component of a displacement of a point on a tread portion and [[an]] a direction ϕ thereof.

Page 11, 1st paragraph:

FIG. 30 is a graph showing a relation between a change of a radial component in a magnetic flux density and [[an]] a direction ϕ.

Pages 11-12, bridging paragraph:

The method for measuring forces acted upon a tire according to the invention determines forces acted upon the tire from a time change of displacement of a point P on a tread portion of the tire under the rotation of the tire, and a principle thereof is described below. FIG. 1 is a

schematically front view of a tire explaining a displacement D in a direction ϕ of a given point P located on an inner peripheral face of a tread portion 2 of a tire 1 at a center in a widthwise direction of the tire. The direction ϕ of the point P means that a coordinate component in a peripheral direction of the tire at a position of the point P represented by a polar coordinate taking a tire rotational center O as an original point is shown by a given standard direction, for example, a peripheral angle from a direction [[ϕu]] $\underline{\phi}$ just above an axis. The displacement D of the point P in the direction ϕ means a physical amount when the point P at a center of an inner peripheral face of the tread portion in the direction ϕ defined in the tire 1 at a state of contacting no portion with a road surface, i.e. under no action of external force moves to a point [[P']] $\underline{P_1}$ under an action of external force to a ground contact face of the tire by contacting the tire with the road surface and a difference of position between the point P and the point [[P']] $\underline{P_1}$ is shown by vector.

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FIG. 8 is a system construction view illustrating a construction example of a force measuring system 19 in which a force is measured by the method for measuring forces acted upon the tire according to the above embodiments and the measured value of the force is output onto ABS in real time. The force measuring system 19 comprises a transmitting device 7 disposed on a rim 6 of each wheel in a vehicle 5 and a receiving device 12 disposed on a vehicle body side of the vehicle 5. The transmitting device 7 comprises a transmission side CPU 9 for reading values of magnetic flux densities detected by a pair of magnetic sensors 8 in a given sampling time and calculating maximum value and minimum value of the change of these

magnetic flux densities, and a transmission antenna 11 for receiving the calculated maximum value and minimum value from the transmission side CPU 9 and transmitting them to the receiving device 12. Also, the receiving device 12 comprises a receiving antenna 13 for receiving signals from the transmission antenna 11, and a receiving side CPU 14 for calculating forces acted upon the tire according to the above principle based on the maximum value and minimum value of the change of the magnetic flux densities and outputting the calculated results to ABS [[15]] 18.

Page 22, 1st full paragraph:

As the magnetic sensor 8A, 8B, it is preferable to use MI sensor or MR sensor capable of detecting a magnetic flux density of a magnetic field even at a position separated apart from the magnet 4 in a good sensitivity. Moreover, the force R in the radial direction of the tire and the force T in the peripheral direction of the tire can be simultaneously measured by only the 8A detecting the peripheral component among the magnetic sensors 8A and 8B, so that the magnetic sensor [[8b]] 8B used for detecting only the force R in the radial direction of the tire may be omitted, but it can be applied for checking the results measured by the magnetic sensor [[8a]] 8A by using together with the magnetic sensor [[8a]] 8A.

Pages 26-27, bridging paragraph:

Then, a third embodiment is described with reference to FIGS. 15-17. In these figures, the same parts as in the first embodiment are shown by the same numerals. FIG. 15 is a section view of the tire 1 at a meridional plane of the tire, and FIG. 16 is a section view corresponding to

an arrow A2-A2 of FIG. 15. In the tread portion 2 of the tire 1 is arranged a steel belt 3 comprised of two belt layers containing steel cords, and one rectangular sheet-shaped magnet 34 is attached to an inner face of the tread portion 2 in the radial direction of the tire or an inner peripheral face 2a of the tire at a point P of a widthwise center so as to coincide the center with the point P, while a magnetic sensor 38 is fixed onto an outer surface of a rim well portion 6A of a rim 6 in the radial direction of the tire at a widthwise center thereof. The magnet 34 is arranged so as to extend one side of the rectangle in the peripheral direction of the tire, and the magnetic sensor 38 is arranged so as to position its magnetic detecting center on a straight line L passing through the point P and extending inward and outward in the radial direction of the tire, and an apparatus 30 for measuring forces acted upon the tire is constituted with the sheet-shaped magnet [[4]] 34 and the magnetic sensor 38.

Page 29, 2nd full paragraph:

The magnetic sensor is attached to a rim well portion 6A in a position on an equatorial plane E of the tire at a posture of detecting a magnetic flux density Hz in the widthwise direction, and also to the rim 6 is attached a transmitting device 7 for treating signals input from the magnetic sensor [[8]] 48 through a junction line and a connector (not shown) and transmitting to a receiving device disposed on a vehicle body.

Pages 31-32, bridging paragraph:

The magnetic sensor 58 is attached to the rim well portion 6A in a position on an equatorial plane E of the tire at a posture of detecting a magnetic flux density Hz in the width-wise direction likewise the fourth embodiment, and also to the rim 6 is attached a transmitting device 7 for treating signals input from the magnetic sensor [[8]] 58 through a junction line and a connector (not shown) and transmitting to a receiving device disposed on a vehicle body.

Page 37, 2nd full paragraph:

As seen from the above, the forces R and T can be determined by replacing $\Delta Hz_{\phi max}$ and ~~$\Delta Hz_{\phi max}$~~ $\underline{\Delta Hz_{\phi min}}$ of the equations (22) and (23) with the following equations (25) and (26) without considering the influence of the earth magnetism.

Pages 37-38, bridging paragraph:

When the magnetic sensor or the magnet is attached and fixed to the rim, if it is arranged to separate apart from the rim, a distance to the magnet or magnetic sensor attached to the tire becomes short, so that a weak magnetic force or a light magnet can be detected by the magnetic sensor having the same sensitivity, which is advantageous in a point that an influence of the tire on unbalance can be reduced. As such an example, an apparatus 110 for measuring forces acted upon the tire, in which the magnetic sensor fixed to the rim is positioned to an outside of the rim in the radial direction, is explained with reference to FIGS. 33-36. FIG. 33 is a section view of the tire 1 showing a section in a plane passing through a rotating axis of the tire, and FIG. 34 is a partial section view illustrating an attaching form of a magnetic sensor [[78]] 118, and FIG. 35 is

a partial section view illustrating another attaching form of a magnetic sensor 118, and FIG. 36 is a section view corresponding to an arrow A4-A4 of FIG. 33.

Page 41, 1st full paragraph:

To the guide 131 is attached a ring 131a, and an adjusting bolt 135 having collars 135b, 135c engaged with the ring 131a and restraining an axial displacement through the collars 135b, 135c is threadedly arranged in a female screw hole 134a formed in the block 134. The adjusting bolt 135 constitutes an adjusting means for adjusting a distance of the magnetic sensor [[8]] 118 separated from the rim 6, which can be reciprocatedly displaced in the radial direction by turning an operating portion [[95a]] 135a without rotating the block 134.

Page 41, 2nd full paragraph:

Even in the latter attaching form, a fine-tuning of a sensitivity of the magnetic sensor [[78]] 118 can be easily conducted at a state of mounting the tire 1 onto the rim 6 as previously mentioned. Also, O-rings 137, 138 for the sealing of a tire internal pressure are arranged in the stay [[120]] 130 as previously mentioned. In the attaching form shown in FIG. [[6]] 35, a portion protruding from the rim 6 in the radial direction can be made minimum, so that the tire 1 is mounted onto the rim 6 at a state of positioning the magnetic sensor 118 near to the rim 6 and thereafter the magnetic sensor 118 is separated apart from the rim 6 to approach to the magnet 114, whereby the sensitivity detecting the magnetic field from the magnet 114 can be raised and hence the mounting of the tire 1 onto the rim 6 can be facilitated.

Pages 41-42, bridging paragraph:

Even in the aforementioned attaching forms, the magnetic sensor 118 is fixed to the rim 6 through the stay 120, 130 at a position separated apart from the rim 6 in the radial direction of the tire, so that the magnetic sensor 118 is arranged near to the magnet 114 attached to the inner face of the tire, whereby it is possible to detect a change of a magnetic field by the magnetic sensor [[8]] 118 even in a magnet having a weak magnetic force and the influence of the magnet 114 on the tire balance or the like can be made minimum by reducing the weight of the magnet.